with incurved hairs about 2 mm. long. The relationship of the newly described species seems so obvious that the lack of flowering material has not been a handicap.

TOPOBEA CASTANEDAE Wurdack, nom. nov.
T. grandiflora Wurdack, Phytologia 6: 6. 1957, non T. grandiflora Suessenguth, Bot. Jahrb. 72: 278. 1942.

THE GENUS PARODIANTHUS

Harold N. Moldenke

This is the twentieth in my series of works of monographic nature on the genera of Verbenaceae. Previous genera so treated are Aegiphila Jacq., Amasonia L. f., Baillonia Bocq., Bouchea Cham., Casselia Nees & Mart., Castelia Cav., Chascanum E. Mey., Citharexylum B. Juss., Cornutia Plum., Petitia Jacq., Petrea Houst., Priva Adans., Recordia Moldenke, Rehdera Moldenke, Rhaphithamnus Miers, Svensonia Moldenke, Tectona L. f., Vitex Tourn. and the New World and cultivated members of Callicarpa L.

Full explanation of the abbreviations employed herein for the names of the 249 herbaria whose material was examined, in whole or in part, in the preparation of these works, will be found in Phytologia 5: 154--159 (1955), 6: 242 (1958), and 7: 91—92 & 123--124. 1960.

PARODIANTHUS Troncoso, Darwiniana 5: 37—39. 1941.

Literature: Moldenke, Phytologia 1: 97. 1934; Junell, Symb. Bot. Upsal. 4: 18. 1934; Moldenke in Fedde, Repert. 39: 47 (1935) and 39: 132, 138—139, 152, & 153. 1936; Hill, Ind. Kew. Suppl. 9: 54. 1938; Moldenke, Geogr. Distrib. Avicenn. 29. 1939; Moldenke, Prelim. Alph. List Invalid Names 14. 1940; Troncoso, Darwiniana 5: 31--40, fig. 1—3. 1941; Moldenke, Lilloa 6: 434 (1941) and 8: 428. 1942; Moldenke, Alph. List Invalid Names 12 & 44. 1942; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 1], 43 & 97. 1942; Moldenke, Lilloa 10: 345. 1944; E. J. Salisb., Ind. Kew. Suppl. 10: 233. 1947; H. N. & A. L. Moldenke, Pl. Life 2: 31 & 75. 1948; Moldenke, Alph. List Cit. 3: 694 & 903 (1949) and 4: 979 & 980. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 105 & 192. 1949; E. J. Salisb., Ind. Kew. Suppl. 11: 178 & 273. 1953; Moldenke, Résumé 126, 250, 354, 408, & 464. 1959.

Illustrations: Troncoso, Darwiniana 5: 33, 36, & 38, fig. 1—3. 1941.

Branched shrubs; leaves opposite or ternate; inflorescence reduced, axillary, racemiform, few-flowered; flowers medium in size, borne on a fleshy receptacle; pedicels bracteate; receptacle

slightly incrassate; calyx cylindric-tubular, membranaceous, gamosepalous, inferior, its tube 5-costate, the rim 5-dentate, the teeth subequal, subulate, the margins incurved; corolla hypocrateriform, gamopetalous, zygomorphic, inferior, its tube terete, the limb spreading, 5-fid, the lobes rounded, unequal; fertile stamens 4, didynamous, included, inserted above the middle of the corolla-tube; filaments short; anthers oblong, eglandular, subdorsifixed, composed of 2 thecae, the thecae parallel; staminode absent; pistil one, 2-carpellary; style single, slender, short, included; stigma terminal, shortly bilobed, the lobes unequal, the posterior one papillose and subpeltate, the anterior one small; ovary superior, ovate, 4-locular, the cells each 1-ovulate; ovules 4, subanatropous, pendulous, broadly and laterally affixed below the apex; fruit schizocarpous, the pericarp thick, subligneous; mericarps 2, hemispheric, 2-celled; seeds exalbuminous, ovate, the embryo straight; cotyledons 2, thick, fleshy, ovate; radicle basal, subconic, the plumule very small.

In my monograph of the genus Casselia Nees & Mart. [Timotocia Moldenke] in 1936 I included this species as a valid species. Since then, however, Nelida S. Troncoso has published a very thorough paper (1941), cited above, in which she presents very cogent arguments for its separation as a distinct genus. I agree with her findings wholeheartedly. Among the differences between the two genera which she lists are the following: in Casselia (1) the inflorescence is definitely racemose, the racemes 1--4-flowered, blooming successively, (2) the calyx is campanulate-obconic, in age venose-reticulate, the teeth triangular, (3) the corolla is infundibular, gradually ampliate apically, somewhat longer than the calyx, (4) the stamens are inserted in the lower half of the corolla-tube, the connectives of the lower ones greatly developed and thickened, (5) the anthers are dorsifixed at their upper half, (6) the ovary is 1-carpellary (the anterior carpel being aborted), 2-locular and 2-ovulate, (7) the ovules are 2 in number, attached laterally, bordering the carpel for a large part of its length, (8) the stigma is swollen, papillose, and oblique, (9) the fruit is drupaceous, composed of two 1-celled and 1-seeded pyrenes, with a thin endocarp, and (10) the distribution is in tropical areas of Brazil, Paraguay, and Bolivia.

On the other hand, in Parodianthus (1) the inflorescence is only problematically racemose, the racemes 2-flowered, and the blooming simultaneous, (2) the calyx is tubular and cylindric, in age 5-costate, the teeth subulate, with the margins rolled inwards, (3) the corolla is hypocrateriform, its tube equal in diameter throughout its length, scarcely surpassing the calyx, (4) the stamens are inserted in the upper half of the corolla-tube, the connective being normal, (5) the anthers are dorsifixed at their lower half, (6) the ovary is 2-carpellary (both carpels perfectly developed), 4-locular and 4-ovulate, (7) the ovules are 4 in number, pendent, attached subapically, (8) the stigma is swollen, 2-lobular, the anterior lobe subpeltate and papillose, the posterior one reduced, (9) the fruit is probably schizocarp-

ous, the 2 mericarps bilocular and 2-seeded, the pericarp thick, and (10) the distribution is in the hot dry region of eastern Argentina.

In view of the construction of the ovary and fruit, the genus appears to belong in the Subfamily Verbenoideae Briq., Tribe Citharexyleae Briq., along with the genera Coelocarpum Balf. f., Duranta L., Baillonia Bocq., Rehdera Moldenke, Citharexylum B. Juss., and Rhaphithamnus Miers, being closest related to the last three of these. However, Citharexylum differs in having a small tubular-campanulate calyx, cyathiform fruiting-calyx, with the teeth reduced, the corolla more nearly actinomorphic and smaller, the androecium consisting of either 5 fertile stamens and 4 fertile stamens and 1 sterile staminode, attached at the same level, the racemes multiflowered. Rhaphithamnus differs in having a small, truncate, decidedly urceolate calyx, with the teeth only slightly developed, the corolla infundibular, the tube elongated, 4 fertile stamens and 1 staminode, the filaments long, the anther-thecae divergent at the base, and the style exserted. Rehdera differs in having the corolla-lobes narrow and densely tomentose or pubescent, 4 fertile stamens and 1 staminode inserted beneath the corolla-mouth, the schizocarp with a winged margin, with a thin papery pericarp, and the racemes both axillary and terminal.

The genus is known only from the type species, Casselia ilicifolia Moldenke [=Parodianthus ilicifolius (Moldenke) Troncoso].

PARODIANTHUS ILICIFOLIUS (Moldenke) Troncoso, Darwiniana 5: 33, 36, & 39. 1941.

Synonymy: Casselia ilicifolia Moldenke, Phytologia 1: 97. 1934. Timotocia ilicifolia (Moldenke) Moldenke in Fedde, Repert. 39: 138--139. 1936.

Literature: see list above, under the genus as a whole.

Illustrations: see list above, under the genus as a whole.

Branching shrub; trunk and larger branches covered with a whitish-gray bark, easily exfoliated; branches slender, quadrangular or subtetragonal, 4-costate, glabrate; secondary branchlets and twigs slender, tetragonal, brownish or yellowish-brown, greenish when fresh, densely short-pubescent or puberulent, sometimes slightly hirsute, with glanduliferous hairs; principal internodes abbreviated, 0.7--3 cm. long; leaves sessile, decussate-opposite or ternate, with a small tuft of long rigid hairs covering the axillary bud at their insertion, the blades varying from oblong or elliptic to oval or ovate, 3--15 mm. long, 1.5--14 mm. wide, puberulent on both surfaces or short-pubescent with uniformly placed hairs, densely and irregularly spinose along the margins, the larger ones very much widened and truncate at the base, the smaller ones crowded on very short twigs and very narrow and acute at the base, the teeth 0.5--2 mm. long, the venation slender, barely visible; peduncles axillary, opposite or ternate, very slender, 2--4-flowered (mostly 2-flowered),

subtetragonal, 1—2 cm. long, densely puberulent or short-pubescent with both long and rigid hairs and with short glanduliferous ones, bracteate at the apex; bractlets one pair, linear or lanceolate, 0.3—6 mm. long, densely puberulent, inserted at the base of the pedicel; pedicels short, 1—5 mm. long; calyx tubular or cylindric, 6—10 mm. long, 2.5—3 mm. wide, more or less 5-costate with the prominent ribs forming distinct depressions between them and terminating in the teeth, densely puberulent or short-pubescent with abundant short hairs and sparse long glanduliferous ones intermixed, the teeth linear, 1—2 mm. long; corolla hypocrateriform, violet, zygomorphic, its tube cylindric, almost straight, slightly surpassing the calyx, 8—11 mm. long, glabrous externally, long-pilose with appressed hairs within near the mouth, the limb spreading, 5-lobed, the lobes unequal, rounded; stamens 4, didynamous, inserted near the base of the corolla-tube or above its middle, included; filaments very short; anthers oblong, eglandular, subdorsifixed, composed of 2 parallel thecae; staminode absent; pistil one, 2-carpellary; style single, slender, about 2.5 mm. long, glabrous, included; stigma terminal, shortly bilobed, the lobes unequal, the posterior one papillose and peltate or subpeltate, the anterior one small; ovary superior, ovate, about 1.3 mm. long, glabrous, 4-celled, the cells each 1-ovulate; ovules 4, subanatropous, pendulous, broadly and laterally affixed below the apex; fruit schizocarpous, the pericarp thick, corky on the outside and subligneous or osseous adjacent to the locules; mericarps 2, hemispheric, 2-celled, smooth on the surface, convex on the dorsal and flat on the commissural surface; seeds exalbuminous, ovate, the embryo straight; cotyledons 2, thick, fleshy, ovate; radicle basal, subconic, the plumule very small.

The type of this species was collected by Frederico Schmaedke at La Diana, Ulapes, La Rioja, Argentina, on February 24, 1907, and is T. Stuckert 17013, deposited in the Delessert Herbarium at the Conservatoire et Jardin Botaniques at Geneva. In my original dissection I found the stamens inserted near the base of the corolla-tube and the ovary only 2-celled, and so described the species. Miss Troncoso claims, after more detailed dissection, that the stamens are actually inserted above the middle of the corolla tube and that the ovary is 4-celled. Stuckert 4727 was erroneously cited by me on page 139 of my Timotocia monograph and in my 1941 work as "4724". In all, 9 herbarium specimens, including the type, and 7 mounted photographs have been examined.

Citations: ARGENTINA: La Rioja: Hieronymus & Niederlein 139 (B, B); Schmaedke s.n. [Stuckert 17013; Macbride photos 28392] (Cb--type, E--photo of type, Kr--photo of type, N--isotype, N--isotype, N--photo of type, S--photo of type, W--photo of type, Z--photo of type); Stuckert 4727 (Cb), 4734 (Cb), 17014 (Cb), 22502 (Cb), s.n. (B--photo).

Miss Troncoso cites specimens of Stuckert 17013 from the Córdoba and Miguel Lillo herbaria, and 17014 from the Córdoba herbarium, not as yet seen by me.